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**BACKGROUND INFORMATION ON HOW
TARGET RADON CONCENTRATION WAS
DERIVED**

1-29-92

**USEPA/DOE
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LETTER**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

REGION 5 COPY

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JAN 29 1992

REPLY TO THE ATTENTION OF:

AT-18J

Randi Allen, Manager
Operable Unit 4
U. S. Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-6357

Dear Ms. Allen:

As requested, enclosed is the background information on how we derived the target radon concentration of 0.015 picoCuries per liter (pCi/l) above background at the nearest residence, used as a performance goal in the K-65 Silos Removal Action Work Plan. Please feel free to call me at FTS 886-6175 or Deborah Arenberg, of my staff, at FTS 353-2654 if you have any questions.

Sincerely yours,

James Benetti, Chief
Radiation Section

Enclosure

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Background Information on USEPA Calculation of Target
Radon-222 Concentration at Nearest Residence
to the U.S. Department of Energy
Fernald Environmental Management Project

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The following input data were used to calculate a target radon level at the location of the maximally exposed individual:

1. Based on information submitted in handouts to USEPA by USDOE on March 9, 1990:
 - a. Nearest residence: 540 meters
 - b. Net radon concentration at nearest residence: 0.8 pCi/l (above background)
2. Based on information presented in USDOE's 7/28/90 draft of the EE/CA for the K-65 Silos Removal Action, page 10:
 - a. Current incremental lifetime risk of fatal lung cancer to the maximally exposed individual from the K-65 Silos: 9×10^{-3}
3. The baseline risk used to set the radon emanation standard at 40 CFR 61, Subpart Q (54 FR 51673, 12/15/89): 1.8×10^{-4}

Using the above inputs, the following calculation was performed to derive a target radon concentration at the nearest residence. This radon concentration is used as a performance goal in the K-65 Silos Removal Action Work Plan:

$$\frac{0.8 \text{ pCi/l}}{9 \times 10^{-3}} = \frac{X}{1.8 \times 10^{-4}}$$

$$X = 0.016 \text{ pCi/l above background}$$

Round X to 0.015 pCi/l above background